

**UNITED STATES PATENT APPLICATION**

**OF**

**Sung Gi HWANG**

**FOR**

**LAUNDRY DRYER**

[0001] This application claims the benefit of Korean Application No. 10-2002-0075981 filed on December 2, 2002, which is hereby incorporated by reference.

## BACKGROUND OF THE INVENTION

### Field of the Invention

[0002] The present invention relates to a laundry dryer, and more particularly, to a laundry dryer employing a unified sealing means in a door sealing assembly of the laundry dryer.

### Discussion of the Related Art

[0003] Generally speaking, a laundry dryer performs the drying of laundry using hot air circulating within a sealed space, which is in essence a drum having an entrance provided with a hinged door for accessing the drum. Typically, the door is provided with a glass window for observing the status of the drum's interior. During drying, hot and humid air is contained under an airtight seal between the various components of the laundry dryer, including the door, the glass window of the door, and components forming the front surface of the drum. Such a laundry dryer is illustrated in FIG. 1.

[0004] Referring to FIG. 1, a laundry dryer comprises a cabinet frame 11 forming the body of the laundry dryer and a frame cover 14 forming the front surface of the cabinet and having an entrance hole where a door frame 15 is installed. The door frame 15 has a door glass 15a through which a user can observe the state of drying. A drum 20 is mounted within the cabinet frame 11, and the front side of the drum is secured to the frame cover 14 using a front support 22 coupled to the frame cover.

[0005] During operation, the air circulating within the closed space, formed by the door frame 15 and door glass 15a closing the entrance hole of the frame cover 14 connected to

the front support 22, may escape through gaps between the above-mentioned components of the laundry dryer. Accordingly, a laundry dryer according to a related art is provided with a door sealing assembly, as shown in FIG. 2.

[0006] Referring to FIG. 2, a door sealing assembly is provided three separate seals or gaskets for establishing an airtight seal between respective components, namely, a first sealing member 41 for sealing a gap between the door frame 15 and door glass 15a, a second sealing member 42 for sealing a gap between the door frame 15 and a frame cover panel 14a of the frame cover 14, and a third sealing member 43 for sealing a gap between the frame cover panel and a front support panel 22a of the front support 22. In doing so, however, three distinctly shaped sealing members are required, which complicates fabrication and increases production costs accordingly. Moreover, with the use of multiple sealing members, there is an inherent increase in the probability of a leak to occur.

#### SUMMARY OF THE INVENTION

[0007] Accordingly, the present invention is directed to a laundry dryer that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

[0008] An object of the present invention, which has been devised to solve the foregoing problem, lies in providing a laundry dryer, by which the sealing properties of a door sealing assembly are improved while simplifying fabrication and reducing production cost.

[0009] It is another object of the present invention to provide a laundry dryer having a door sealing assembly in which a unified sealing member is used to perform the necessary sealing actions.

[0010] Additional features and advantages of the invention will be set forth in the

description which follows, and in part will be apparent to those having ordinary skill in the art upon examination of the following or may be learned from a practice of the invention. The objectives and other advantages of the invention will be realized and attained by the subject matter particularly pointed out in the specification and claims hereof as well as in the  
5 appended drawings.

[0011] To achieve these objects and other advantages in accordance with the present invention, as embodied and broadly described herein, there is provided a laundry dryer having a sealing assembly for a hinged door, the laundry dryer comprising a door frame, the door frame being provided with a door glass; a frame cover having a frame cover panel in which an  
10 entrance hole is formed for receiving the door frame, the frame cover panel having an inner end surface; a front support, coupled with the frame cover, for supporting a drum, the front support having a front support panel having an inner end surface; and a unified sealing member, fixed to the inner end surfaces of the frame cover panel and the front support panel, providing for simultaneous contact with surfaces of the door frame and the door glass when  
15 the hinged door is closed.

[0012] It is to be understood that both the foregoing explanation and the following detailed description of the present invention are exemplary and illustrative and are intended to provide further explanation of the invention as claimed.

#### 20 BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0014] FIG. 1 is an exploded perspective view of a general laundry dryer;

[0015] FIG. 2 is a cross-sectional view of a door sealing assembly of a laundry dryer according to a related art;

[0016] FIG. 3 is a cross-sectional view of a door sealing assembly of a laundry dryer according to the present invention; and

[0017] FIG. 4 is a cross-sectional view of the sealing member of FIG. 3.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Reference will now be made in detail to the preferred embodiment of the present invention, examples of which are illustrated in the accompanying drawings.

[0019] Referring to FIG. 3, a laundry dryer according to the present invention is provided with a frame cover 52 having a frame cover panel 52a having a rolled inner end 52b, a door frame 51 with a door glass 51a, a front support 53 having a front support panel 53a, a unified sealing member 54, and a fixing bar 55. The frame cover 52, which provides the front cover of the cabinet frame (shown in FIG. 1) and is coupled to the front support 53, has an entrance hole for receiving the door frame 51 with the door glass 51a through which a user may observe the state of drying. The front support 53 provides support for the front end of the drum (shown in FIG. 1) to be mounted to the frame cover 52. The unified sealing member 54 is a single gasket piece fixed to inner end surfaces of the frame cover panel 52a of the frame cover 52 and the front support panel 53a of the front support 53, while providing for simultaneous contact with surfaces of both the door frame 51 and the door glass 51a. The fixing bar 55 is provided to press and fix the unified sealing member 54 to the frame cover panel 52a.

[0020] Referring to FIG. 4, the unified sealing member 54 comprises a small diameter

part 54a for receiving the fixing bar 55, a large diameter part 54b for receiving the rolled inner end 52b of the frame cover panel 52a of the frame cover 52, a lip 54c protruding from one side of the large diameter part, and a tip 54d protruding from a juncture of the large and small diameter parts. The small diameter part 54a, large diameter part 54b, lip 54c, and tip 54d are  
5 integrally formed of a pliable material such as soft rubber. When the door of the laundry dryer is closed, the tip 54d is in pliant contact with the door frame 51 and the lip 54c is in pliant contact with the door glass 51a. The rolled inner end 52b of the frame cover panel 52b is curved toward the door frame 51, and the fixing bar 55 presses and fixes the small diameter part 54a to the rolled inner end.

10 [0021] In the door sealing assembly of the laundry dryer according to the present invention, the unified sealing member 54 is provided at the gaps between the door frame 51 and door glass 51a, the door frame 51 and frame cover 52, and the frame cover 52 and front support 53, whereby air is prevented from escaping when the door is closed during operation. At the time of assembly, the respective inner ends of the frame cover panel 52a and the  
15 support cover panel 53a are inserted in a space of the unified sealing member 54, between the small diameter part 54a and the large diameter part 54b, thereby sealing the gap between the frame cover 52 and the front support 53; and the rolled inner end 52b of the frame cover panel 52a is inserted over the small diameter part 54a of the unified sealing member 54, thereby sealing the gap between the door frame 51 and the frame cover 52. When the door is closed,  
20 the gap between the door frame 51 and the front frame 52 is sealed by the tip 54d of the unified sealing member 54 making contact with the door frame 51. The seal between the door frame 51 and the front frame 52 is facilitated by the fixing bar 55 pressing and fixing the small diameter part 54a of the unified sealing member 54 to the rolled inner end 52b of the frame cover panel 52a. The seal between the door frame 51 and the door glass 51a is

maintained, when the door is closed, by the tip 54d being in contact with the door frame, and the lip 54c being in contact with the door glass.

[0022] By adopting the door sealing assembly as described above in a laundry dryer according to the present invention, the unified sealing member 54 provided as a single sealing means including the large diameter part 54b, small diameter part 54a, tip 54d, and lip 54c is disposed in correspondence to the various components of the laundry dryer. Accordingly, the reduced number of sealing members improves the sealing properties of the door sealing assembly, simplifies fabrication, and reduces production cost.

[0023] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover such modifications and variations, provided they come within the scope of the appended claims and their equivalents.